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Claims

What is claimed is:

1. A method of validating an error correction code engine of a disc drive comprising steps of:
 - 5 (a) choosing a physical sector to use for running a validation test for validating the error correction code engine;
 - (b) determining if the physical sector is good; and
 - (c) performing the validation test using the physical sector if the physical sector is good.
- 10 2. The method of claim 1 wherein the error correction code engine includes an error correction function and wherein the determining step (b) comprises steps of:
 - (b)(i) commanding the disc drive to disable the error correction function;
 - (b)(ii) disabling the error correction function;
 - (b)(iii) issuing a write long command to write a first data sector to the physical sector;
 - 15 (b)(iv) writing the first data sector to the physical sector in response to the write long command;
 - (b)(v) issuing a read long command to read a second data sector corresponding to the first data sector from the physical sector;
 - (b)(vi) reading the second data sector from the physical sector in response to the read
20 long command; and
 - (b)(vii) comparing the first data sector to the second data sector to determine if the first data sector equals the second data sector.
3. The method of claim 2 wherein the indicating step (b)(i) comprises issuing a read long
25 command to read a third data sector from the physical sector.
4. The method of claim 2 wherein the error correction code engine includes an error detecting function and wherein the reading step (b)(vi) comprises steps of:
 - (b)(vi)(1) reading the second data sector from the physical sector;
 - 30 (b)(vi)(2) detecting any errors in the second data sector;

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5. A method of validating an error correction code engine in a disc drive, the error correction code engine having a plurality of error correction code functions, the method comprising steps of:

- (a) receiving a first command from a host connected to the disc drive;
- (b) determining whether to disable one or more of the plurality of error correction code

5 functions in response to receipt of the command;

(c) disabling the one or more error correction code functions if the command indicates to disable the one or more error correction code functions; and

(d) executing the command so that the host can validate the error correction code engine.

10 6. The method of claim 5 wherein the first command is a read long command having a physical sector, and wherein one of the plurality of error correction code functions is a detecting function able to detect errors in a data sector, and wherein the executing step (d) comprises steps of:

(d)(i) reading a data sector from the physical sector;

(d)(ii) detecting any errors in the data sector;

15 (d)(iii) repeating steps (d)(i) and (d)(ii) until either no errors are detected or a predetermined number of repetitions is performed to preclude reporting a valid sector as invalid.

7. The method of claim 5 wherein the first command is a write long command having a physical sector and a data block, and wherein one of the plurality of error correction code functions is an error correction code calculating function able to calculate an error correction code for the data block, and wherein another one of the plurality of the error correction code functions is an appending function able to append the error correction code onto the data block to create a data sector, and wherein the executing step (d) comprises steps of:

- (d)(i) calculating an error correction code for the data block;
- 25 (d)(ii) appending the error correction code onto the data block to create a data sector;
- (d)(iii) writing the data sector onto a disc of the disc drive at the physical sector.

8. The method of claim 6 wherein one of the plurality of error correction code functions is an error correction code calculating function operable to calculate an error correction code for a data
30 block, and wherein another one of the plurality of the error correction code functions is an

- 5 (f) disabling the error correction code calculating function in response to the write long command;

- (g) disabling the appending function in response to the write long command;
- (h) writing the data block onto a disc of the disc drive at the physical sector.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
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9. A disc drive comprising:

a disc having a plurality of physical sectors; and

an error correction code(ECC) engine operable to detect a bad physical sector, the ECC engine having an ECC calculating module, an appending module, and a write decision module,
5 wherein the write decision module determines whether to disable a calculating function and an appending function by bypassing the ECC calculating module and the appending module.

10. The disc drive of claim 9 wherein the ECC engine function further comprises:

a detecting module, a correcting module, and a read decision module, wherein the read
10 decision module determines whether to disable a correcting function by bypassing the correcting module.

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11. An error correction code engine validation system for a data storage device comprising:

a host computer attached to the data storage device having a read/write channel including an error correction code engine, wherein the error correction code engine includes an error correction code correction function and an error correction code detection function;

5 a validation means in the disc drive for validating the error correction code engine, wherein the validation means utilizes read, read long, and write long commands to identify a valid sector to be used for validation and then disables error correction code correction function.

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